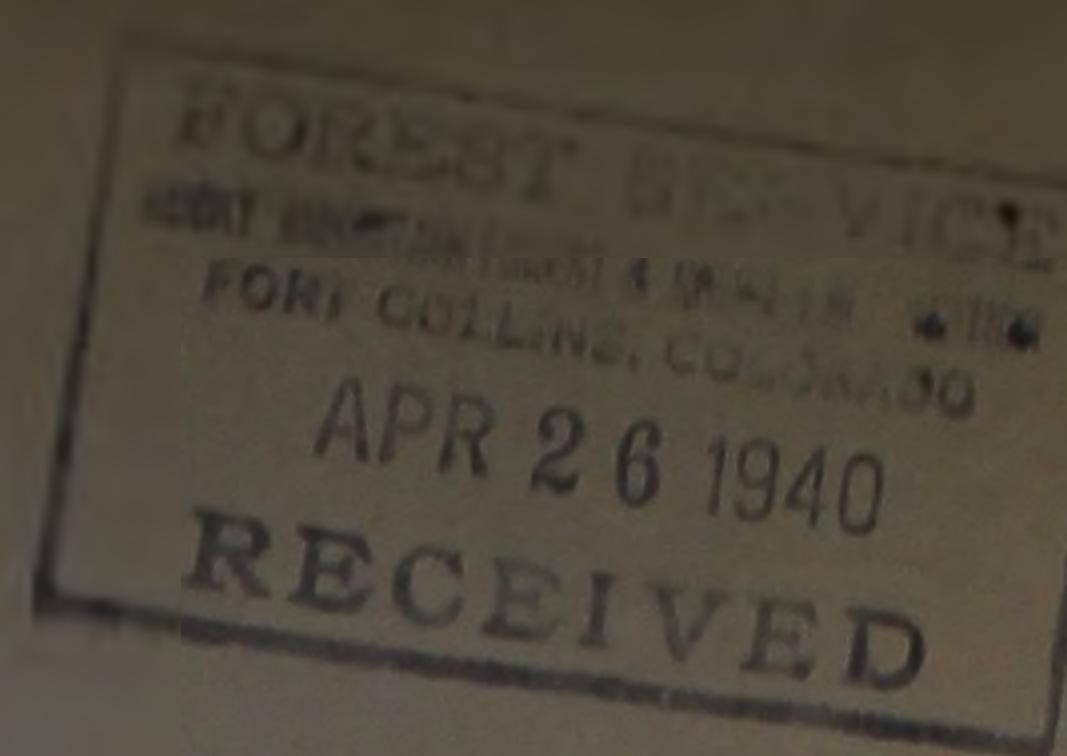


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APPALACHIAN FOREST EXPERIMENT STATION

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EARLY REMOVAL OF SURPLUS OAK SPROUTS DESIRABLE TO REDUCE BUTT ROT

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In the course of timber stand improvement work some of the most common and complex problems have dealt with the treatment of sprout stands. A large proportion of the area of the better and more accessible sites of the Allegheny, Appalachian, and Central hardwood forests are covered with young even-aged stands of oak stump sprouts. This is particularly true from central Virginia and West Virginia, north and west, where oaks have been cut on short rotations for charcoal, mine props, distillation wood, fuel, and other small products, and less so farther south where most of the oak cut has gone into sawtimber. There are two particularly undesirable features of these stump sprout stands. One is that a large proportion of the trees are in groups of two or more, making for poor spacing and consequent adverse effects on growth and form. The second, as shown by Roth and Sleeth,^{1/} is that from about 10 to 40 percent of these sprouts, depending upon the species, are butt-rotted as a result of the transmission of decay from parent stump to sprout.

It was discovered early that the improvement of stands over about 20 years old is particularly difficult because one cannot tell, with any fair degree of certainty, which trees are already butt-rotted, and one often cannot reduce the number of sprouts in a clump without creating a decay hazard for the remaining trees by leaving large open

^{1/}Roth, Elmer R. and Bailey Sleeth. Butt rot in unburned sprout oak stands. U.S. Dept. Agr. Tech. Bull. 684, 43 pp., illus. 1939.

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wounds at the base. The improvement of well-stocked oak sprout stands under 20 years old, or 3 inches average d.b.h., presents no difficult problems and does not require exacting axmanship. Roth and Sleeth have clearly demonstrated that sprouts that arise at or near the ground line are much less likely to become decayed than those that arise higher on the stumps. The fact that the sprouts of high origin are usually the dominant sprouts on a stump makes this factor of added importance. They also showed that sprouts from small stumps have a better chance to remain sound than those from larger stumps. It is only at a young age that these basal characteristics of a sprout that determine its likelihood to decay can be clearly seen. Once sprouts reach a size at which the parent stump is grown over, the point of origin is obscured, and companion sprouts have become large, it is too late to do the most effective improvement work. Sprouts that develop after fire, whether or not preceded by cutting, are mostly of low origin, because fires kill the higher buds on the stump. In such stands emphasis should be put on favoring sprouts from small stumps and on providing adequate spacing between stems. The optimum period for clump reduction is when a stand is between 8 and 15 years old. If, during this period, adjacent competing sprouts on a given stump are reduced in number so that only one or two well-separated sprouts of low origin remain, a well-spaced stand of fairly rot-free stems should result.

Wherever young oak stump sprouts are an important element in the forest composition it would be well if the managing agencies formulated plans for their early treatment. The recent bulletin by Roth and Sleeth contains a valuable fund of practical information on sprout oaks, including suggestions of measures to keep butt rot at a minimum, and should be useful to those charged with the management of this type of timber.